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Sec: A7-B3

Roll no:46

```
#include <stdio.h>

void nextValue(int k, int n, int G[n+1][n+1], int x[n+1]);
void hamiltonian(int k, int n, int G[n+1][n+1], int x[n+1]) {
    while (1) {
        nextValue(k, n, G, x);
        if (x[k] == 0)
            return;
        if (k == n) {
            for (int i = 1; i <= n; i++)
                printf("%d ", x[i]);
            printf("%d\n", x[1]);
        } else {
            hamiltonian(k + 1, n, G, x);
        }
    }
}

void nextValue(int k, int n, int G[n+1][n+1], int x[n+1]) {
    int j;
    while (1) {
        x[k] = (x[k] + 1) % (n + 1);
        if (x[k] == 0)
```

```
    return;

    if (G[x[k - 1]][x[k]] != 0) {
        for (j = 1; j <= k - 1; j++)
            if (x[j] == x[k])
                break;
        if (j == k) {
            if ((k < n) || ((k == n) && G[x[n]][x[1]] != 0))
                return;
        }
    }
}

int main() {
    int n = 5;

    int G1[6][6] = {
        {0,0,0,0,0,0},
        {0,0,1,1,0,1},
        {0,1,0,1,1,0},
        {0,1,1,0,1,0},
        {0,0,1,1,0,1},
        {0,1,0,0,1,0}
    };

    int G2[6][6] = {
```

```
{0,0,0,0,0,0},  
{0,0,1,1,0,1},  
{0,1,0,1,1,0},  
{0,1,1,0,1,1},  
{0,0,1,1,0,1},  
{0,1,0,1,1,0}  
};  
  
int x[6];  
for (int i = 1; i <= n; i++)  
    x[i] = 0;  
x[1] = 1;  
  
printf("For Graph 1 (Areas A-E):\n");  
hamiltonian(2, n, G1, x);  
  
for (int i = 1; i <= n; i++)  
    x[i] = 0;  
x[1] = 1;  
  
printf("\nFor Graph 2 (T, M, S, H, C):\n");  
hamiltonian(2, n, G2, x);  
  
return 0;  
}.
```

The screenshot shows a code editor interface with a terminal tab open. The terminal window displays the following text:

```
[Running] cd "/Users/om/Documents/DemoC/" && gcc pract7.c -o pract7 && "/Users/om/Documents/DemoC/"pract7
For Graph 1 (Areas A-E):
1 2 3 4 5 1
1 3 2 4 5 1
1 5 4 2 3 1
1 5 4 3 2 1

For Graph 2 (T, M, S, M, C):
1 2 3 4 5 1
1 2 4 3 5 1
1 3 4 2 5 1
1 3 2 4 5 1
1 3 5 4 2 1
1 5 3 4 2 1
1 5 4 2 3 1
1 5 4 3 2 1

[Done] exited with code:0 in 1.288 seconds
```

A small "Ask about your code." button with a question mark icon is visible in the bottom right corner of the terminal window.

GitHub: <https://github.com/ghangaremanthan908-wq/Manthan23A>